

Additional LKM Fix**Symptoms:**

Headlights randomly turning off (even while driving)

Items needed

- Soldering gun/iron
- Solder
- Solder sucker (optional)

Location of items

The fuse box is located on the driver side just in front of the winshield.

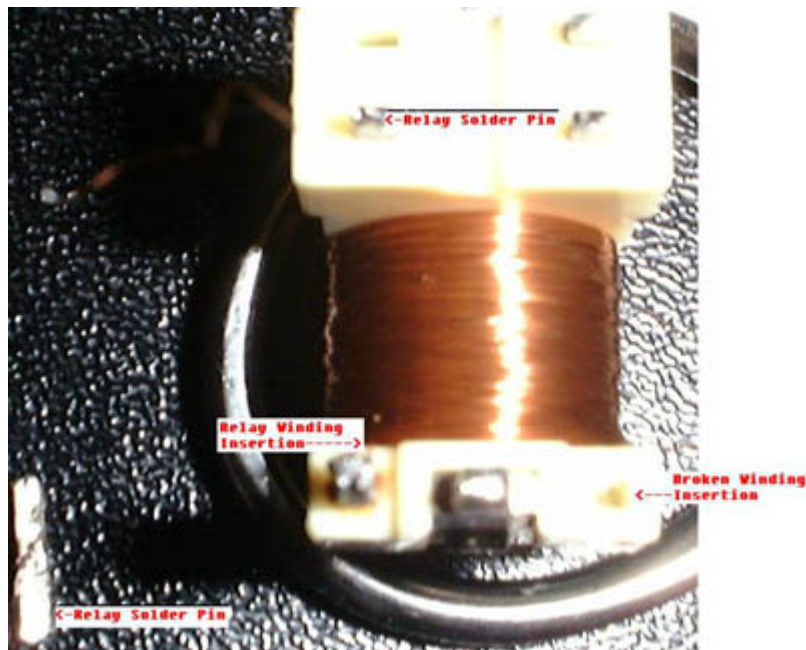


The LKM module is located in the fuse box.

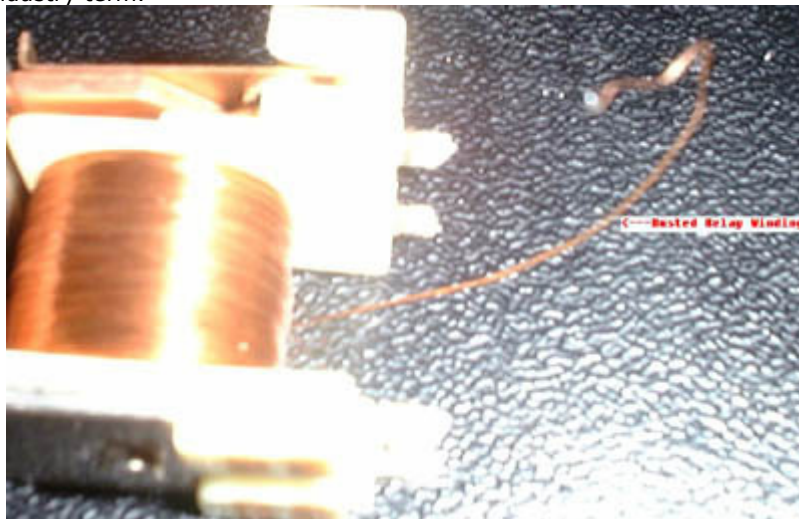
**How to repair**

First try the LKM and Mustard Relay Fix, and if it does not work then try this fix.

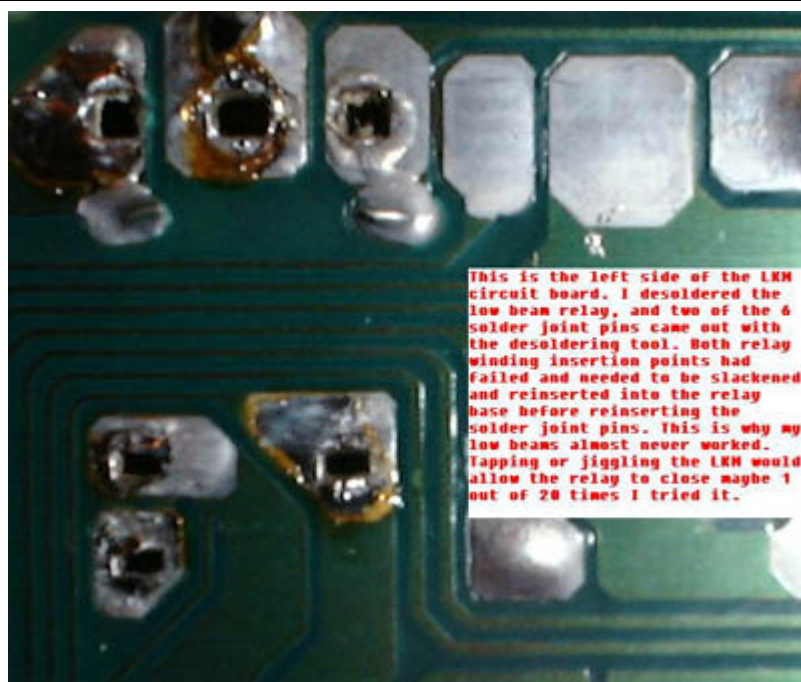
After I desoldered all the relays from the LKM circuit board this is what I found:



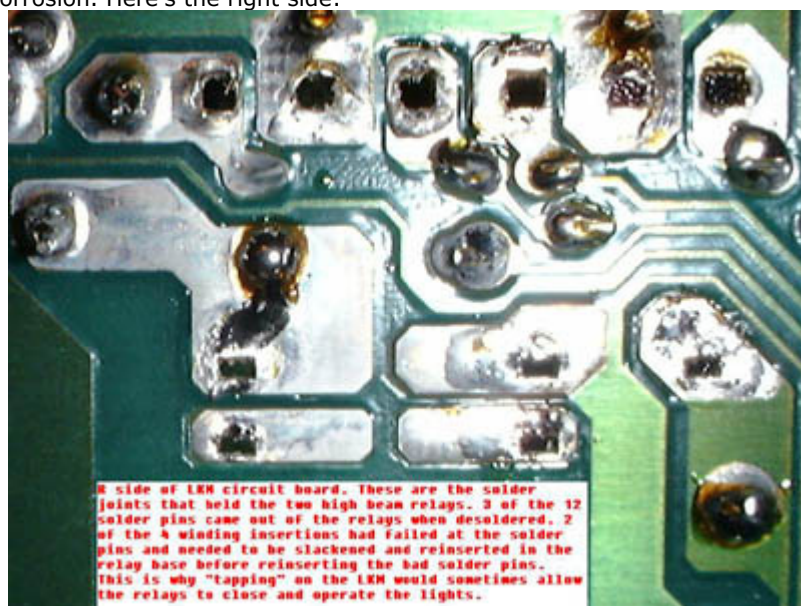
When I started removing solder joints with a vacuum desoldering tool, pins that attach the relay to the PCB started coming out. You can see one in the lower left hand corner of the image above. If you look carefully at the relay, you can see that one end of the relay's copper winding terminates on the left pin, but you can't see the wire that is supposed to terminate on the right pin (the one that's missing). That's because it broke and is too short to fit in the insertion hole. In the image below, you can see the broken wire AFTER I've unwound one turn of it to create enough slack to stuff it back down the insertion hole on the relay. NOTE: Make sure you leave enough slack in the wire so that it won't break when the tension on it increases as you reinsert the pin that attaches the winding to the circuit board. Too much slack and it might move around enough to short against something. That is what we'll call "a Bad Thing", it's an industry term.



Here's what my LKM looked like after I desoldered the three relays (High, Low, Fog). Note: some LKMs have 4 relays, mine has three. Yes, it came that way. Note that the annotation on the next image is wrong, there are relays for high, low, and fog. Not 2 for high beams as is indicated here.



Notice the brown crap on the joints. That's melted varnish and solder, not corrosion. Here's the right side:



Anyway, basically you're going to desolder all the relays and CAREFULLY remove them from the PCB. Remember that there's some other solid state stuff on this module so Static is your enemy. Ground yourself, especially during these winter months when dry air is a common threat. Once you've done that, turn the relays over and look at the pins under magnification to identify the ones with winding terminations. Check them for continuity and if broken, unwind them one turn and trim to proper length, insert wire into pinhole, and stuff the pin back in. In my case, this was easy because the pins came out as I was desoldering them. If yours didn't, you can heat the pin and extract it with needle nose pliers (I used a Mayo clamp).

Resolder the relays making sure that you cleaned the contact area on the PCB of old solder, let cool, and reassemble the module and plastic cover. MAKE SURE there's no loose balls of solder rolling around in the plastic cover, because you just know they will find a way to short something out.

Go stick the LKM back in, start your beautiful e32 (yes, this will work for e34s too) and enjoy proper illumination! Hope this helps.